

REMARKS

This communication responds to the Office Action of March 3, 2010. In the Office Action, the Examiner rejected claims 1, 2, 4-7, 10 and 24 under 35 U.S.C. § 102(e) and rejected claims 1-2, 4-7, 10, 24 and 25 under 35 U.S.C. § 103(a).

By this communication, claims 1 and 25 have been amended.

In view of the amendments and the following remarks, reconsideration and allowance are respectfully requested.

Claim Rejections Under 35 U.S.C. §102

Claims 1, 2, 4-7, 10 and 24 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,863,694 (Boyce '694).

Independent Claim 1 is Not Anticipated by Boyce '694

Claim 1 is directed a method comprising, in part, "at least partially immersing a quantity of bone in an immobilization medium [and] effecting a phase change of the immobilization medium to convert the immobilization medium to a solid state."

Boyce '694 does not disclose solidifying an immobilization medium

Boyce '694 discloses an osteoimplant prepared by providing elongate bone-derived elements in a coherent mass and mechanically shaping the mass. Boyce '694, col. 2, lines 42-46. Further regarding preparation of the osteoimplant, Boyce '694 discloses that a quantity of the bone-derived elements is contacted with a suitable fluid carrier to form a dough-like composition. Boyce '694, col. 13, lines 1-11. Boyce '694 does not disclose solidification of this fluid carrier.

However, in the Office Action, the Examiner relates the claimed "immobilization medium" to the fluid carrier of Boyce '694 and asserts that "upon mixing bone particle with the immobilization medium, the liquid phase is changed to a phase that is towards solidifying the medium to provide a solidified mass relative to the original liquid phase." *Office Action*, page 4.

Applicants disagree. The “dough-like composition” disclosed in Boyce ‘694 is merely a mixture of bone-derived elements and a fluid carrier. The fluid carrier in the mixture exists in the same physical state as it existed prior to mixture – the liquid state. Regarding phase change, Applicants note that because the dough-like composition is a mixture (as opposed to, for example, a solution), the only mechanism to effect a phase change of the fluid carrier in the composition is a temperature and/or pressure change of the mixture. Such a temperature and/or pressure change is not contemplated in Boyce ‘694. Thus, Boyce ‘694 does not disclose “solidifying [an] immobilization medium,” as claimed in claim 1.

Applicants note that to facilitate prosecution, claim 1 has been amended, as shown above, to more clearly reflect these points.

For at least the foregoing reasons, Boyce ‘694 does not disclose the invention of claim 1, nor claims depending therefrom. Reconsideration and allowance are thus respectfully requested.

Claim Rejections Under 35 U.S.C. §103

Claims 1-2, 4-7, 10, 24 and 25 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 5,899,939 (Boyce ‘939) in view U.S. Patent 5,507,813 (Dowd) as evidenced by *J. Histochem. Cytochem.*, March 1987, 35(3): 361-369 (Aaron).

Independent Claim 1 is Not Obvious Over Boyce ‘939 in View of Dowd as Evidenced by Aaron

Claim 1 is directed to a method comprising, in part, “at least partially immersing a quantity of bone in an immobilization medium [and] effecting a phase change of the immobilization medium to convert the immobilization medium to a solid state.”

The asserted combination does not teach at least partially immersing a quantity of bone

Boyce ‘939 teaches a bone-derived implant made up of a plurality of superimposed layers, fixed to each other into a unitary structure, and possessing compression strength characteristics similar to that of natural bone. *Boyce ‘939*, col. 2, lines 4-8. Regarding preparation of the implant:

A cortical section of bone from the diaphyseal region was cut in the longitudinal direction while continuously wetted with water into approximately 1.5 mm thick layers using a diamond-bladed saw. The layers were then frozen to -70.degree. C. and freeze-dried for 48 hours. The layers were then assembled with cyanoacrylate adhesive and held in a clamp for two hours while the adhesive set. The resulting multilayered unitary structure was cut on a band saw and shaped by grinding and machining with a hand-held motorized shaping tool to provide a shaped bone implant.

Boyce '939, col. 6, lines 48-57

That is, the layers of the implant are formed by cutting a section of bone that experiences continuous wetting. Such wetting is not "at least partially immersing" as claimed in claim 1. The Examiner is respectfully directed to the plain meaning of immersing:

to plunge into something that surrounds or covers; *especially* : to plunge or dip into a fluid.

Merriam-Webster's Online Dictionary, 11th Edition.

to plunge into or place under a liquid; dip; sink.

Dictionary.com

Mere wetting of a bone section does require that the section be "plunged into" or "placed into" the wetting fluid (i.e., does not require immersing the bone section). Moreover, it is unclear how the layer cutting step of Boyce '939 could be carried out if the bone section was at least partially immersed in the wetting fluid, and under what rationale such immersion would be employed as it would only complicate the layer cutting process without providing any meaningful benefit.

For at least the foregoing reasons, Boyce '939 does not teach "at least partially immersing a quantity of bone in an immobilization medium," as claimed in claim 1.

In the Office Action, the Examiner asserts that in view of Dowd and Aaron, it would be obvious to modify the teachings of Boyce '939 to "subdivid[e] the frozen immobilization medium and bone prior to freeze drying using the method known in the art." *Office Action*, page 6. However, even assuming *arguendo* that the asserted modification was obvious, such modification would not remedy the teaching deficiencies of Boyce '939, as discussed above.

For at least the foregoing reasons, none of Boyce '939, Dowd, and Aaron, alone or in combination, make obvious the invention of claim 1, nor claims depending therefrom. Reconsideration and allowance are thus respectfully requested.

Conclusion

This application now stands in allowable form and reconsideration and allowance are respectfully requested.

This response is being submitted on or before September 3, 2010, with the required fee for a three-month extension of time, making this a timely response. It is believed that no additional fees are due in connection with this filing. However, the Commissioner is authorized to charge any additional fees, including extension fees or other relief which may be required, or credit any overpayment and notify us of same, to Deposit Account No. 04-1420.

Respectfully submitted,

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